

**Date: October 20, 2003**

## **FY03 ANNUAL REPORT**

**Project Title & Country/Region:** Servicio de Investigation Epidemiologica y Vigilancia de Centro America, la Republica Dominicana, y Haiti (SIEVCADH) – Dominican Republic, Guatemala, Haiti, Honduras, and Nicaragua

**Time frame:** October 1, 2002 to September 30, 2003

**USAID Funding Unit:** Global Bureau, LAC Bureau, Guatemala Mission, Nicaragua Mission, and Haiti Mission

**Funding Level:** Total \$918,000

**Pipeline:**

**CDC Contact Persons:** Dr. Rubina Imtiaz and Mr. Hoang Dang

**Implementing Unit (Center/Division):** EPO/DIH

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### **Project Description/Summary:**

Given the commitment of the ministries of health of Central America and the Caribbean to continue with the development of capacity in epidemiologic practice and surveillance, a core follow-on project to the Post-Hurricane Reconstruction Project was proposed. This follow-on project, called Servicio de Investigation Epidemiologica y Vigilancia de Centro America, la Republica Dominicana, y Haiti (SIEVCADH), was designed to provide essential technical support for the continued fortification of advances in epidemiologic practice, effective data use, and public health surveillance. It was also designed to allow a gradual pull-out of CDC support leaving a self-sustaining regional program. CDC initially agreed to provide two consultants to work with full-time counterparts from seven individual ministries of health. These counterparts had the responsibility of overseeing all aspects of operations of the Field Epidemiology Training Program (FETP) and the Data for Decision Making (DDM) program. The CDC consultants were to work hand-in-hand with the country counterparts to assure continuing improvement in the quality and relevance of the epidemiology and surveillance carried out by residents and trainees in each country. As the project would progress the number of CDC consultants would progressively decrease and leave increasing responsibility for technical oversight of the individual country activities to the country counterparts. The CDC consultants would then gradually focus greater attention on more difficult and challenging issues as well as the complete institutionalization of the project (target completion date: September 2005).

Both FETP and DDM program are designed to produce immediate and longer-term, valuable services: field investigations leading to policy and practice improvements and surveillance development and utilization. These outputs from FETP and DDM participants should provide an economic benefit exceeding the initial investment. To further underpin this concept, the follow-on project would focus on development of public health surveillance and epidemiologic investigation into areas of critical and high

priority public health relevance. The subjects for investigation and surveillance development would be critical to the countries as well as to global concerns of the donors and other partners. Accordingly, surveillance projects would focus on diseases such as HIV/AIDS, malaria, tuberculosis, emerging infectious diseases, malnutrition, maternal mortality, diarrheal diseases, etc. It would be the responsibility of the CDC consultants, the country counterparts, and the regional technical committee to assure the continuing focus on these high priority areas and coordination among countries in their development.

Goals:

Provide the Public Health Services of Central America, Dominican Republic, and Haiti with:

1. High-quality public health surveillance, epidemiologic assessment and epidemiologic investigation competencies in order to increase the effectiveness and efficiency of public health action, programs, and policy;

AND

2. An enhanced professional and institutional capacity to continue producing these epidemiologic products after full transfer of project activities to the host country partners.

**Activities/Tasks Completed**

1. Surveillance studies

During this past year, surveillance studies were conducted in Guatemala, Nicaragua, and Honduras.

Guatemala

Trainees in Guatemala have been actively working with the review of surveillance data both at the national and department levels. During the past year, they conducted analysis of malnutrition, maternal mortality, dengue, and HIV/AIDS surveillance data. As a result of the analysis of maternal mortality surveillance data, the trainees found that the departments of San Marcos, Solola, and Totonicapan have the highest maternal mortality rates in the country. Subsequently, surveillance indicators for maternal mortality were developed for 8 health departments in collaboration with JHPIEGO and USAID. Through the analysis of 2001-2002 malnutrition surveillance data, it was found that children under 5 years old in the department of San Marcos have one of the highest rates of malnutrition (19.5% have acute malnutrition, 1.3% have severe malnutrition, 2.4% have moderate malnutrition, and 15.9% have mild malnutrition). In addition, the trainees in Guatemala participated in the revision and update of the national surveillance guidelines for notifiable diseases as they have not been revised or updated since 1988. The guidelines have been completed and are in the process of being published. Furthermore, trainees participated in the design of the national HIV/AIDS surveillance system, which resulted in the pilot of all sentinel sites. Finally, the recently established CDC Global AIDS Program (GAP) in Central America requested the assistance of an FETP graduate and an FETP trainee to conduct an evaluation of the HIV/AIDS

surveillance system in Guatemala and Panama. The results of the evaluations are going to be presented at the HIV/AIDS regional scientific meeting held in Panama City in October 2003.

#### Nicaragua

In Nicaragua, after analysis of mortality data, trainees identified chronic renal failure (CRF) to be a leading cause of death in Silais Chinandega for the past six years. An average of 110 individuals dies of CRF per year, representing 13% of the total number of deaths reported in the department annually. Among persons older than 35 years old, CRF is the leading cause of death.

#### Honduras

In Honduras, a trainee conducted an analysis of 1999-2002 mortality data for the Juticalpa Health Department. During that period of time 542 deaths were identified. Of those deaths, 15.5% were gun-related, 13.8% were due to cardiovascular diseases, 11.8% were due to cancer, and 5.5% were related to infections.

## 2. Emergency epidemiologic investigations

During this past year, emergency epidemiologic investigations have been conducted in Guatemala and Honduras.

#### Guatemala

During this past year, FETP trainees in Guatemala have conducted a total of 25 Emergency epidemiologic investigations including food borne disease outbreaks, dengue and hemorrhagic dengue outbreaks, leptospirosis outbreaks, diarrhoeal disease outbreaks, and disaster emergency response (see Table 1 for more details and Appendix A for abstracts of selected outbreak investigations).

#### Joint Investigation in Guatemala, Honduras, and El Salvador

FETP trainees in Guatemala, Honduras, and El Salvador have participated in a joint investigation aimed to characterize a regional epizootic that has killed over 1,000 equines in Guatemala and Honduras, and more than 200 in El Salvador (note: El Salvador participation in SIEVCADH is funded under the PASA 519-P-EZ-02-00164-00 with the USAID mission in El Salvador). This outbreak started in 1998 with clusters of equine encephalitis (EE) appearing simultaneously in the Western Region of Guatemala and the Departments of Ocotepeque, Paraíso, and Comayagua in Honduras. The epizootic extended to the Departments of Cabañas and Usulután in El Salvador by December 2001 and had further extended in 2002-2003 to nine of the 14 Departments of El Salvador.

Table 1.

	<b>Title of Outbreak Investigation</b>	<b>Location</b>	<b>Year</b>	<b>FETP</b>	<b>Status</b>
1	Brote de enfermedad transmitida por alimentos, aldea Casas de Pinto, Noviembre	Rio Hondo, Zacapa	2002	I-III	Complete
2	Brote de Dengue Clasico Area Urbana Flores	Peten Norte	2002	II	Complete
3	Brote de Leptospirosis. Masagua. Julio	Escuintla	2003	II	Complete
4	Brote de Varicela en Centro de Atención Integral San Pedro Sac Febrero-Marzo	San Marcos	2003	II	Complete
5	Brote de Tos Ferina Caserío Nueva América Tumbador Abril	San Marcos	2003	II	Complete
6	Desastre en Caserío San Francisco, Chichicastenango, Abril	San Marcos	2003	II	Complete
7	Brote de Síndrome Ictérico. San Pedro	San Marcos	2003	II	Complete
8	Estudio de Caso Muerte Materna. Hospital Nacional	San Marcos	2003	II	Complete
9	Sepsis Neonatal Hospital Nacional. Agosto	San Marcos	2003	II	Complete
10	Dengue Hemorrágico en Huite. Octubre	Zacapa	2002	III	Complete
11	Estudio de Caso Dengue Hemorrágico. Llano de Piedras. Noviembre	Zacapa	2002	III	Complete
12	Intoxicación por plaguicidas. San José. Teculutan. Enero	Zacapa	2003	III	Complete
13	Brote de Diarrea por Rotavirus. Estanzuela. Enero	Zacapa	2003	III	Complete
14	Estudio de Caso de Leptospirosis. San Jorge. Enero	Zacapa	2003	III	Complete
15	Dengue Hemorrágico en El Oreganal. Teculutan. Marzo	Zacapa	2003	III	Complete
16	Brote por Intoxicación alimentaria. La Pedrera Gualán. Marzo	Zacapa	2003	III	Complete
17	Dengue Hemorrágico Paraíso. San Diego. Marzo	Zacapa	2003	III	Complete
18	Brote de Tos Ferina. Aldea Sta Cruz Huite Abril	Zacapa	2003	III	Complete
19	Brote de Hepatitis A Aldea Sta Croz Rio Hondo.	Zacapa	2003	III	Complete
20	Brote de Intoxicación alimentaria. Aldea La Esperanza. Diciembre	Quetzaltenango	2003	III	Complete
21	Brote de Fiebre Tifoidea Sta Clara La Laguna. Octubre	Solota	2003	III	Complete
22	Brote de Tos Ferina San Jose Chacaya Febrero 2003	Solota	2003	III	Complete
23	Brote de Enfermedad Diarreica. Solota. Mayo	Solota	2003	III	Complete
24	Brote de Enfermedad Febril Santa Catarina Ixtahuacan Mayo	Solota	2003	III	Complete
25	Brote de Dengue San Pedro La Laguna Septiembre	Solola	2002	III	Complete

### 3. Planned epidemiologic investigations.

For the most part, trainees in the SIEVCADH countries are progressing satisfactorily toward fulfilling their requirement to design and carry out an epidemiologic investigation to solve a priority public health problem in their respective countries.

#### Guatemala

In Guatemala, subsequent to a Dengue outbreak, a knowledge, attitude, and practice (KAP) survey was designed and conducted, which found that 59% of respondents did not know how Dengue is transmitted, only 20% of respondents took part in the community activities to prevent the transmission of Dengue, and 81% of households in the community are at risk for the transmission of Dengue.

In September 2002, Guatemalan FETP II trainees with the assistance and collaboration of the DDM trainees, the health department staff, and the city hall staff designed and conducted a study to look at chronic disease risk factors in the community of Teculutan. The study found that among all respondents: the prevalence rate of hypertension was 9.4%; 47% of men use tobacco; 31% of men and 47% of women have a BMI > 28; 26% of men and 11% of women do not participate in any regular physical activity; and the large majority of children under 15 participate in physical activity only 2 hours per week. The results of the study were presented this past August to the Mayor as well as representatives of the civil community (i.e., police chief, fire chief, etc.) and were well received. Subsequent to the presentation, the mayor decided to create a City Health Commission to explore possible interventions as well as to look at other health problems in the community with the technical assistance of the FETP.

#### Haiti

Continuing work in Haiti has been challenging. At the beginning of the project several unexpected changes occurred. The most critical one was the resignation of our counterpart from the Ministry of Health. By September 30, 2003, the Ministry of Health has not appointed a replacement, which makes communication and coordination of project activities extremely difficult. However, in order to provide the three Haitian trainees with epidemiologic opportunities to complete their training, particularly their field work, we have collaborated with two programs at CDC who have ongoing projects in Haiti: the Lymphatic Filariasis (LF) program of the Division of Parasitic Diseases and the Global AIDS Program (GAP). As a result of the collaboration, two proposals were developed. One was to have at least one trainee provide technical assistance in the design, coordination and implementation of the filariasis coverage survey and to analyze the side effects in coverage survey areas. The second one was to have at least one other trainee provide technical assistance in the evaluation of sentinel HIV surveillance in antenatal clinics and to assist with quality control during the survey and analysis of survey data. Both proposals were reviewed by the USAID mission and were submitted to the Ministry of Health for final approval. After persistent follow-up by both CDC and the USAID mission, only one of the trainees received approval from the Ministry of Health to work with the LF program for a period of six-weeks. No response was ever received from the Ministry of Health regarding the assignment of the other trainees.

### Nicaragua

As a follow-up to the mortality data analysis, which identified chronic renal failure (CRF) to be a leading cause of death in Silais Chinandega for the past six years, a descriptive study was conducted. The study found that most CRF cases are agricultural workers that live in the municipalities of Chinandega (where the culture of cane is the principal activity). Therefore, a case-control among the sugar cane workers was designed and implemented and found that there is a strong association between the domestic consumption of “sandpaper” alcohol, also known locally as “guarolija”, and the development of CRF (OR = 10.8 [IC95% = 3.6-29.6]. Trainees are now conducting additional studies to determine the extent of the problem as well as documenting the distribution of guarolija so that guarolija samples can be collected for testing.

#### 4. Communication:

Table 2.

<b>Title</b>	<b>Authors</b>
1. Factores de Riesgo de Mortalidad Materna en el Departamento de Huehuetenango. Guatemala, 2002	- Evelyn Alvarado P., José Cano L. Claudia Herrera, Fredy Rodas
2. Factores de Riesgo para Malaria, Aldea Paxcaman, Flores, Petén, Enero-Junio 2003	- Edwin R.Sosa, Mario Recinos Salam
3. Determinación del estado nutricional en niños menores de cinco años, en municipio de San Agustín Acasaguastlán, El Progreso. julio-agosto 2003	- Carlos Alberto Ovando
4. Seroprevalencia de VIH en mujeres trabajadoras del sexo en el Distrito de Flores, Petén, 2003	- Mario Recinos Salam
5. Factores de riesgo en la mortalidad neonatal. Hospital Nacional de Huehuetenango. enero – junio 2003	- Evelyn Johanna Alvarado Polanco,
6. Evaluación De Coberturas De Vacunación .Comitancillo, San Marcos 2003	- William Mérida G. , Elisa Barrios
7. Incidencia De Suicidios Con Plaguicidas, Retalhuleu. 2001 – 2003	- Romeo Guerra
8. Prevalencia de Diarrea y Factores De Riesgo en Niños Menores de 5 años. Pachalum, Quiche .2003	- César Oliverio Juárez Paiz
9. Estado Nutricional de Niños Menores De Cinco Años. Ixcán, El Quiché. Agosto 2003	- Luisa Imelda Godoy Medina
10. Prevalencia de infección de herida operatoria por cesárea y sus factores de riesgo Hospital Nacional de Huhuetenango .2003	- Claudia Rossana Herrera Maldonado
11. Factores de Riesgo asociados a mortinatos San Jose Poaquil, Chimaltenango , 2003	- Miguel Luis González Cutzal
12. Factores de Riesgo en mortalidad infantil. San Juan Atitán, Huehuetenango. 2003	- José Orlando Cano López
13. Prevalencia de lesiones cutaneas positivas a leishmaniasis Aldea La Esperanza, Melchor, Petén, Guatemala, 2003	- Edwin Roderico Soza Salina,
14. Factores de Riesgo en la mortalidad en menores de cinco años, Nentón, Huehuetenango. 2003	- Fredy Rolando Rodas Alvarado

In January 2003, FETP Trainees in Central America submitted 10 abstracts based on investigations done under the Post-Hurricanes (Mitch and Georges) Reconstruction Project for the international night scientific presentations during the 52<sup>nd</sup> Annual Epidemic Intelligence Service Conference held in Atlanta, March 31-April 4, 2003. A total of 86 abstracts were received from around the world. Six abstracts were selected for presentation, but unfortunately none were from Central America.

In November 2002, the 1<sup>st</sup> National Epidemiologic Conference was held in Guatemala at the University San Carlos. A total of 20 field investigations and studies from the FETP and the DDM program were presented. For 2003, planning of the 2<sup>nd</sup> National Epidemiologic Conference is underway with a total of 36 investigations and studies conducted by FETP and DDM trainees to be presented. In addition, FETP trainees in El Salvador and Nicaragua have been invited to attend as well as to submit abstracts for the conference. All submitted abstracts will be compiled and published in the Epidemiologic Bulletin of the Ministry of Health. In Table 2 are abstracts titles of the DDM trainees who will be presenting.

## 5. Field Training:

### Guatemala

In Guatemala, FETP trainees have been conducting field investigations under the supervision of the CDC consultant on various topics including maternal mortality risk factors, violence-related injuries, hemorrhagic Dengue, infant mortality. With the CDC consultant acting as a catalyst, the Ministry of Health has instituted the Epidemiologic Rounds, which are held every Mondays. During the rounds, FETP trainees as well as staff from the Epidemiology Office and other interested individuals review surveillance data collected from the national surveillance system from the previous weeks, present the country current health status, and discuss outbreaks and/or any other related-health events of national importance. On Tuesdays, FETP trainees are required to attend epidemiologic seminars which are spearheaded by the CDC Consultant. During the seminars, trainees present and discuss a pre-selected epidemiologic or surveillance topic.

### Haiti

In Haiti, the USAID mission requested that we collaborate with other CDC programs that have project in-country. Therefore, we worked with the Lymphatic Filariasis (LF) program of the Division of Parasitic Diseases and the Global AIDS Program (GAP) to develop two project proposals. As part of the proposals, it was agreed that a senior CDC epidemiologist in each program would provide guidance and direction to any trainee assigned to the projects proposed. The LF program received approval from the Ministry of Health to have one trainee assigned to its program. During her assignment, she coordinated the national filariasis coverage and knowledge surveys in 5 clusters under the mentorship of a medical epidemiologist of CDC's Division of Parasitic Diseases who is still currently mentoring the trainee with the data analysis of the surveys and the write-up of an abstract.

During this past year, several other CDC epidemiologists and contracted consultants have traveled to Central America, particularly Honduras, Nicaragua and the Dominican Republic, to provide additional mentorship to the trainees. During their trip, they have worked with trainees on their various projects and ensured that trainees' projects are within the program standards and norms.

#### 6. National Program Directors/Tutors:

The national program director or tutor should be a graduate of a Field Epidemiology Training Program or at the very least an epidemiologist who is experienced in the practice of field epidemiology. This person will require full-time dedication to assuring sufficient high-quality investigations and other experiences for the trainees. By September 30, 2003, an FETP trainee in Guatemala from the second cohort has been identified to serve as the National Tutor, although the MOH has not yet officially created the position.

In Honduras, a FETP trainee there has also been identified to hold the National Tutor position. However, this person is not a staff of the Office of Epidemiology, but rather of the Office of Statistics, which could make it difficult for that person to fully dedicate her time in the mentorship and supervision of the trainees. In Nicaragua, negotiations for this appointment have been interrupted following a radical change in ministers and senior staff. We hope to have a selection appointment from among three potential candidates hopefully within the next few months.

#### 7. Didactic training:

During the first semester, a request for proposals was developed for a cooperative agreement to provide academic coverage (including training and oversight) of the field epidemiology training. After a few hurdles and delays, the program announcement passed all administrative steps and clearances within CDC and DHHS and was published in the Federal Register on April 23, 2003, with a submission deadline of June 9, 2003. At the closing of the program announcement, only the Universidad National Autonomous de Nicaragua (UNAN)-Leon had submitted a proposal, which was reviewed by an Objective Review Panel according to CDC's Procurement and Grants Office regulations. The Objective Review Panel recommended that UNAN-Leon be awarded a cooperative agreement in the amount of \$220,000, but that funds have been withheld until they submit a revised budget and addresses the following weaknesses:

- Identify and describe the mechanism by which it will work with the Ministries of Health of participating countries.
- Review program objectives to be time-phased and measurable
- Provide more details about the interaction of the training program with the FETP. What is the relationship?
- Clearly outline how it will conduct supervision of field activities

- Provide a description of activities that trainees will conduct when assigned to a field assignment.
- Provide a description/details of didactic course content.
- Provide timeline of proposed activities and a schedule for the courses.
- Provide an objective mechanism to evaluate the program to determine if proposed goals and objectives are being met.
- Develop an evaluation plan for measuring the success of the program by evaluating instructors and supervisors.
- Describe how existing committees (i.e., FETP Regional Technical Committee) will be used to strengthen the program.
- Develop a plan regarding how other regional academic institutions can be involved in order to make the program representative of the region. This plan should include how these other institutions will be used in didactic training and field training.
- Revise trainee requirements to include a breadth of surveillance projects rather than simply "surveillance evaluation".
- Provide a more detailed budget and budget justification for \$220,000.

CDC officially awarded the cooperative to UNAN-Leon on September 11, 2003 and UNAN-Leon has until October 30, 2003, to address the weaknesses in the format of a revised proposal. Once, the weaknesses have been addressed, we expect to have this portion of the project back on track and fully underway by December 2003.

In the fall of 2002, basic manuals for using the distance-based learning system HorizonLive were reviewed and translated into Spanish. We also familiarized ourselves with the full operation of this system anticipating its introduction throughout the entire SIEVCADH area. In January, during a supervisory and developmental trip to Central America, we field-tested the system in several ministries of health. Several problems were identified and corrected; the most common of which was saturation of ministry of health Internet connections. We also found that the system could be accessed from any Internet cafe in the isthmus as an alternative for trainees in remote sites. Subsequently, we produced a lecture on criteria for selecting variables in public health surveillance, a seminar on rabies surveillance has done in the United States, and a seminar on HIV/AIDS surveillance in Central America. The lecture and the two seminars were successfully broadcasted to the trainees and staff in the participating countries. The distance-based learning sessions were also recorded and may be accessed at the following web site ([www.cies.horizonlive.com](http://www.cies.horizonlive.com)). For those wishing to access the site and review the sessions go to the website, and run the Wizard (to set up audio and video on their computer), login as a guest, and select one of the "eventos archivados". We expect that the system will be fully operational when the cooperative agreement with UNAN-Leon is in effect. Furthermore, to enhance delivery of the seminars and to provide greater reach in the use of the system for the trainees, we are contemplating the acquisition of the portable archive feature of the system. This feature would allow the transport HorizonLive archives off the server where they reside onto portable media such as CD ROMs, thus enabling trainees to review archived sessions virtually anywhere at anytime.

## **8. Strengthening inter-country cooperation in surveillance and epidemiology.**

During the first semester we crafted a request for proposals for a cooperative agreement to cover this objective of the project. Again, after clearing a few hurdles and some delays, the program announcement cleared all administrative steps and was published in the Federal Register on April 23, 2003, with a submission deadline of June 9, 2003. At the closing of the program announcement, only the Pan-American Health Organization (PAHO) submitted a proposal, which was reviewed by an Objective Review Panel according to CDC's Procurement and Grants Office regulations. The Objective Review Panel recommended that PAHO be awarded a cooperative agreement in the amount of \$130,000 with a few minor recommendations. CDC officially awarded the cooperative agreement to PAHO on September 11, 2003. We expect to have this portion of the project fully underway by November 2003.

In the interim, trainees and staff of the project have taken the lead on an isthmus-wide outbreak of encephalitis among courses and other equines. The etiology of this outbreak is most likely either West Nile encephalitis virus or Venezuelan equine encephalitis virus. Both carry a threat of severe disease in humans, and both represent an emerging or reemerging disease in the isthmus. The issue of adequate surveillance of equine encephalitis on the isthmus was raised at the recent COMISCA meeting in Central America and participating countries agreed on the priority for improving both veterinary and human surveillance.

## **9. Additional Activities – Data for Decision Making (DDM) Program**

In Guatemala, a cooperative agreement was signed between the University of San Carlos and the Ministry of Health with the technical support of CDC in order to continue the DDM program, started under the Post-Hurricane Reconstruction Project, for the next three years. This year, a total of thirty students were enrolled in the program. The last module in a series of nine and the graduation of the DDM trainees are scheduled for the end of October 2003. As part of the program, trainees conducted a combined total of twenty-four outbreak investigations, surveillance studies, and case-control studies. In addition, each of the trainees was required to train in basic epidemiology and surveillance a minimum of 5 staff in their local health department (see abstracts in Appendix B).

Under the DDM program in Guatemala, FETP and DDM trainees jointly designed a planned epidemiologic investigation in San Juan Alotenango scheduled to be conducted during the first week of October. The objective of the study is to determine the prevalence of diarrhoeal disease, respiratory disease and assess the vaccination coverage among children under 5 years of age in this area.

## **Results/Accomplishments:**

### **Dominican Republic**

Late in the Post-Hurricanes (Mitch and George) Reconstruction Project, trainees in the Dominican Republic investigated an exacerbation of a longstanding problem of neonatal

sepsis and death in the principal maternity hospital in Santo Domingo. Their investigation unequivocally demonstrated that specific breeches in management of intravenous fluids had caused the problem. They also identified a simple measure to prevent the problem and convinced the hospital to institute it. To date, follow-up surveillance of the problem and of the preventive measure has substantiated a sustained decrease of 90% in neonatal sepsis, 78% in sepsis related mortality, and 45% in neonatal mortality though this semester. In response, the MOH is preparing a plan to further extend these investigations, surveillance, and prevention measures to other maternity hospitals.

#### Nicaragua

In Nicaragua, after analysis of mortality data, trainees identified chronic renal failure (CRF) to be a leading cause of death in Silais Chinandega for the past six years. An average of 110 individuals dies of CRF per year, representing 13% of the total number of deaths reported in the department annually. Among persons older than 35 years old, CRF is the leading cause of death. After conducting a descriptive study of the health problem, it was found that most CRF cases are agricultural workers that live in the municipalities of Chinandega (where the culture of cane is the principal activity). A subsequent case-control study found a strong association between the domestic consumption of “sandpaper” alcohol, also known locally as guarolija, and the development of CRF (OR = 10.8 [IC95% = 3.6-29.6]. Trainees are now conducting additional studies to determine the extent of the problem as well as documenting the distribution of guarolija so that guarolija samples can be collected for testing.

#### Haiti

One Haitian trainee of the first cohort is progressing nicely to successfully complete her required field work. She coordinated the national filariasis coverage and knowledge surveys in 5 clusters under the mentorship of a medical epidemiologist of CDC's Division of Parasitic Diseases. She is now proceeding with the data analysis of the surveys and writing an abstract for publication as well as presentation.

#### Guatemala

The mayor of Teculutan, Guatemala, decided to create a City Health Commission to explore possible interventions related to chronic diseases as well as to look at other health problems in the community after the FETP conducted a study to look at chronic disease risk factors in the community.

To provide additional public health opportunities to the trainees as well as to build additional epidemiologic capacities, collaboration with the recently established CDC Global Aids Program (GAP) in Central America has been initiated. As a result, GAP has requested that one of their in-country staff epidemiologists be able to participate in the FETP as well as the assistance of the FETP to conduct an evaluation of the HIV/AIDS surveillance system in Guatemala and Panama.

Dr. Carlos Flores, a FETP trainee from the first cohort in Guatemala, has fulfilled all of the program requirements. He is now ready to graduate from the program and will travel to Nicaragua at the end of October for the defense of his FETP work./projects.

In Guatemala, during this past year, first year FETP trainees have conducted more emergency epidemiologic investigations (17) than first year trainees from the year before (9). This increase in the number of outbreak investigations conducted by FETP trainees could be attributed to an improvement in the detection of disease outbreaks.

### **Challenges/Issues/Obstacles**

As previously mentioned in the Activities/Tasks Completed section, item #3, continuing work in Haiti has been challenging. At the beginning of the project several unexpected changes occurred. The most critical one was the resignation of our counterpart from the Ministry of Health. By September 30, 2003, the Ministry of Health has not yet appointed a replacement, which makes communication and coordination of project activities extremely difficult. However, we are still committed and determined to have the three Haitian trainees complete the program and as such we will continue to collaborate with other CDC programs that have projects in Haiti to develop surveillance or epidemiologic opportunities so that the trainees are able to graduate from the program.

In the Dominican Republic, unfortunately, program activities and mentorship of trainees has been almost non-existent due to the lack of support and funding from in-country collaborators. Because of the upcoming elections and the uncertainty in the new government, the USAID mission preferred not to provide support the program until after the elections.

In Honduras, the country epidemiologist, our CDC consultant in Guatemala, and the World Bank country representative met in early July 2003 and came to an agreement to use some of the World Bank funds designated for public health surveillance to support the FETP. The additional financial support provided by the World Bank would be used to hire an in-country consultant, and thus be able to fully implement all FETP activities. Following the July meeting, the World Bank country representative made the recommendation to the World Bank headquarters in Washington, D.C. to approve the funding for the FETP in Honduras. However, to date, despite ongoing follow-up, no official response has been received whether or not the World Bank has approved the funds to support the FETP.

Although final institutionalization of SIEVCADH as an independent, self-sustaining program is not planned until September 2005, progress toward this key goal has not been making headway as hoped for due to the following reasons:

- The University, which partnered with us during the Post-Hurricane Reconstruction Project, suffered a serious internal split during the past six months. Faculty members, who had worked with us during this initial project and had developed the curriculum that we are currently following, have left their posts

- by moving on to other campuses of the Universidad National Autonomus de Nicaragua (UNAN). This faculty regrouped under the Leon Campus of UNAN and responded successfully to the program announcement requesting academic coverage (including training and oversight) of the field epidemiology training.
- Some unanticipated administrative challenges delayed the awarding of a cooperative agreement with the Universidad National Autonomus de Nicaragua (UNAN) in Leon. Accordingly, UNAN-Leon has not participated and developed in any distance-based learning or other academic activities as planned. However, now the cooperative agreement has been awarded, we hope to have the academic coverage of the project on track and fully underway by December 2003.
  - The same unanticipated administrative challenges also delayed the awarding of a cooperative agreement with the Pan- American Health Organization (PAHO). As a result, the SIEVCADH Regional Technical Committee (RTC) has not been able to meet and provide on-going guidance to the program (the last time that the RTC met was in September 2002). Consequently, a number of Ministries of Health did not follow-up with the commitments that they had agreed to at the last meeting.
  - To ensure that the goal is eventually met, epidemiology and surveillance departments in all countries need to continue supporting and develop program graduates. Most of all, this requires that countries appoint a national director or tutor charged with overseeing the progress of trainees within their public health system. By September 30, 2003, this has only been marginally achieved in four countries (Guatemala, Honduras, El Salvador, and Costa Rica), whereas there have been delays in this appointment in the other three countries (Nicaragua, Haiti, and the Dominican Republic).

Because of the lack of support, of a clear career path, and growth opportunities in some ministries of health, a number of the FETP trainees do not seem to recognize the advantages of being a graduate of the program and thus have been, to a certain extent, dispassionate in fulfilling the program requirements. This problem is even more evident in countries (i.e., Nicaragua, Honduras, the Dominican Republic, and Haiti) where we were unable to place a permanent CDC in-country consultant. Although, our consultants and other CDC epidemiologists have tried to provide those trainees mentorship and supervision (via TDY and e-mails), they have been non-responsive to their demands and the program requirements. Consequently, some of those trainees seem to have been unwilling to stay in the program. Some attempts have been made to get those trainees back into the program, but these attempts have been frustrating and mostly unsuccessful.

The transition period from the Post-Hurricanes Reconstruction Project to the SIEVCADH project has not been as smooth and easy as anticipated. A key element for providing the transition from one project to another was the award of the two cooperative agreements early on. Because we were unable to do so, the momentum of the program at the end of the Post-Hurricanes Reconstruction Project did not carry-on (as expected) to the new project.

## **Future Directions**

A key emphasis for this upcoming project year (October 2003 to September 2004) will be to have the didactic training entirely developed and implemented through the UNAN-Leon cooperative agreement and the SIEVCADH RTC totally supported through the PAHO cooperative agreement. Having all of the activities funded under both cooperative agreements fully carried out will not only help the project to get back on track, but will also help it in regaining momentum.

To ensure that mentorship is adequately provided to all trainees in all project countries, we are planning to collaborate more closely with the Training Programs in Epidemiology and Public Health Interventions Network (TEPHINET), a non-profit organization that was established in June 1997 whose mission is to strengthen international public health capacity through initiating, supporting, and networking of field-based training programs that enhance competencies in applied epidemiology and public health interventions. (For more information about TEPHINET, please visit: [www.tephinet.org](http://www.tephinet.org)). This new collaboration will require us to revise some of the strategies used for the mentorship and supervision of the trainees.

To get the best candidates into the FETP program, we will need to work closely with the ministries of health on strengthening the overall public health system in each country by creating a system that would absorb the FETP graduates and provide them with an environment conducive to the practice of newly learned competencies

## Appendix A

### Abstract 1

#### **Brote de Enfermedad Gastrointestinal, en Barrio San Antonio. Sololá, Guatemala.**

**C. A. Mayo de 2003.**

*Juracán, Jogli, FETP III, Guatemala*

**Antecedentes:** El 12 de mayo de 2003 fue notificado brote de enfermedad gastrointestinal, ocurrida entre los asistentes después de haber asistido a un festejo familiar de cumpleaños, el cual duró tres días. Se realiza la investigación para identificar la fuente y agente infeccioso

**Métodos:** Entrevista a los participantes a la fiesta sobre síntomas, alimentos consumidos, hora y fecha y de inicio de síntomas. Definición de caso: "toda persona que halla estado en la fiesta del 10 al 11 de Mayo de 2003 y posterior a ello halla presentado diarrea de todo tipo (líquida, mucosa sanguinolenta)." No se tomaron muestras para análisis bacteriológico.

**Resultados:** De los 60 participantes, 43 (72%) pudieron ser entrevistados. Tasa de ataque fue 56% (24/43). Diarrea, vómitos y náusea fue reportada por 19 pacientes (79%), fiebre en 4 (19%). Alimentos mal almacenados fueron consumidos y también manipulados por persona enferma; (TA=83% 10/12, RR=1.85 [IC 95% 1.16 - 3.65]) p<0.0231 por comer alimento recalentado y cebiche (manipulado) fue asociado significativamente con la enfermedad (TA=75% 18/24 RR= 2.38 [IC 95% 1.18 - 4.79]); p< 0.0044-. Media de Periodo de Incubación- 32 horas. Posible agente *E coli enterotoxigeénica*

**Conclusiones:** Este brote señala la necesidad de capacitar a los manipuladores de alimentos sobre almacenamiento y manipulación adecuada pues el vehículo más factible como en este caso son los alimentos consumidos recalentados y el cebiche (manipulado). Abordar oportunamente los brotes permite tomar muestra que para aislar el agente.

### Abstract 2

#### **Desastre en el caserío San Francisco, El Chichicaste, aldea Chim, San Pedro Sacatepéquez, San Marcos, 2003.**

*Elisa Barrios De León FETP II, Área de Salud San Marcos, Guatemala*

**Introducción:** El día 23 de abril a las 4:00 a.m. fue reportado un derrumbe por falla geológica del Cerro Cocol, caserío Chichicaste, aldea Chim, San Pedro Sacatepéquez, San Marcos, situado a 20 kms, de la cabecera municipal, población de 570 habitantes. Un equipo de epidemiólogos va al lugar a evaluar el impacto del desastre.

**Métodología:** Visita a la zona afectada: Caserío San Francisco el Chichicaste, aldea Chim, San Pedro Sac, San Marcos. Entrevista con líderes de la comunidad, revisión de registros médicos, revisión de registros de comité de emergencia. Encuesta a refugiados en albergues sobre necesidades básicas.

**Resultados:** 62% (54/87) de viviendas destruidas, 26% de ellas (14/54) fueron soterradas, Las casas sobre la falla tuvieron mas riesgo de ser soterradas OR = 5.43 (IC95% 1.04-37.44) p< 0.02  $\chi^2$  = 5.39. 22 fallecidos (TM 4x100) vivían en 3 de las casas soterradas ubicadas sobre la falla.. 8% de los habitantes (46/570) requirieron atención médica por Tensión nerviosa (TA=4.3%), problemas respiratorios (TA=2%), Espasmos musculares (TA=0.5%). Instalaron 3 albergues, con un total de 69 habitantes. No se registro ninguna patología entre albergados.

**Discusión:** La destrucción de las viviendas y la mortalidad estuvo relacionada con la ubicación a la falla ecológica. La rápida atención y distribución en albergues no produjo patologías

Palabras clave: Desastre

### Abstract 3

**Conocimientos y Aplicación de Medidas en el Control domiciliar y Comunitario de Dengue en San Pedro la Laguna, Sololá. Octubre de 2002.**  
*Juracán, Jogli FETP III, Guatemala*

**Antecedentes:** Entre los meses de Septiembre y Octubre del 2002 se documentan 23 casos de Dengue clínico en dos cantones de San Pedro la Laguna Sololá; se realiza una encuesta de Conocimientos, Actitudes y Prácticas (CAP) con respecto a la enfermedad y sus medidas de prevención y control.

**Métodos:** Estudio transversal descriptivo, con selección de muestra intencionada de 133 habitantes en los dos cantones, con IC 95% presición 2% prevalencia de 2% (nivel de infestación) y el recurso humano disponible. Posteriormente el muestreo se hizo en dos etapas y sistemático. Se hicieron visitas domiciliarias con cuestionario preguntado sobre, datos generales, conocimientos, actitudes y prácticas acerca del Dengue; se verificaba las condiciones de la vivienda, la presencia de larvas y factores de riesgo.

**Resultados:** Se completaron 103 encuestas El 66% entrevistado fue del género femenino (68/103). El promedio de edad fue de 38 años  $\pm$  15.94. El 59% no sabe como se transmite el Dengue, el 20% participa en su cantón para evitar la enfermedad y el 96% almacena agua pero de ellos solo 69% limpia su pilas. Sin embargo en el 81% de las viviendas se encontró alguna condición de riesgo para la proliferación del vector. Existe asociación significativa entre no saber y no hacer. ( $\chi^2$  18.80 p < 0.0001 IC 95%).

**Conclusiones:** Existe insuficiente conocimiento sobre la prácticas de prevención y control del Dengue. Escasa participación comunitaria. Plan de Educación es necesario implementarse.

#### Abstract 4

##### **Vigilancia de la Desnutrición --- San Marcos, Guatemala, 2002**

*Elisa Barrios De León FETP II, Area de Salud San Marcos, Guatemala*

**Introducción:** La Vigilancia epidemiológica de la Desnutrición Aguda, se inicio en el año 2001, por ser prioridad nacional por la situación de pobreza y alta vulnerabilidad en Guatemala. El Departamento de Epidemiología implementó el sistema en niños menores de 5 años a nivel nacional, se presentan los resultados del Departamento de San Marcos.

**Metodología:** Periodo estudiado: 2001-2002. en 8 municipios del Area de Salud de San Marcos. Censo Nutricional para caracterizar la Desnutrición aguda. Se midió Peso y Talla, utilizó tabla de Nabarro para identificar desnutrición aguda en todos los menores de 5 años. El Sistema Nacional de Vigilancia Epidemiológica tiene una base Comunitaria promoviendo el análisis en los diferentes niveles de atención.

**Resultados:** Se evaluaron 29.024 niños, se encontró una tasa de 12.85 por 1000 niños menores de 5 años de Desnutrición Grave DG (N= 373), Desnutrición moderada DM 23.63 (N= 686) y Desnutrición Leve DL 159.00 (N=4615) como consolidado de los 8 municipios, al estratificar por comunidades el municipio con mas comunidades críticas es Tajumulco, (Tasa x 1000 DG=38 , DM=59 DL=245) con 90% de población indígena, del total de las comunidades críticas el 49 % corresponde a este municipio, el municipio con la más baja proporción fue Sibinal con un 10 % de comunidades. Tasa x 1000 DG=2.7; DM= 8.9; DL= 85)

**Discusión:** El sistema es necesario para llevar un registro adecuado de la Desnutrición Aguda, para toma de decisiones y evitar muerte infantil, prioritario dentro de la política de salud del país y a nivel local.

**Recomendaciones:** Estandarizar el Sistema al 100 % de los municipios del área y utilizar datos del Sistema para toma de acciones. El abordaje de la Desnutrición debe ser multisectorial.

Palabras clave: Desnutrición, Vigilancia.

#### Abstract 5

##### **Estudio de brote de Enfermedad transmitida en alimentos, aldea Casas de Pinto, Río Hondo, Zacapa, noviembre de 2,002**

*Dra. Betty Gordillo de González FETP III Zacapa Dr. Carlos Roberto Flores Ramírez  
FETP I Guatemala*

**Introducción:** Se notifica al Departamento de Epidemiología que durante el mes de noviembre del 2002 un incremento de casos de enfermedad diarreica en Casas del Pinto, aldea del municipio de Río Hondo, Zacapa, dedicada principalmente a la agricultura, con Antecedentes de fumigación un día antes. Epidemiólogos del FETP asisten a la investigación para determinar el agente y fuente del brote.

**Metodología:** Entrevista domiciliaria al 100% de la comunidad, Definición de Caso: Toda persona de cualquier edad y sexo originaria y residente de Casas de Pinto, Río Hondo, que a partir del 12 de noviembre presente o haya presentado, diarrea acompañada o no de fiebre, dolor abdominal, náusea, vómitos, u otras manifestaciones clínicas. Se les tomó muestra para coprocultivo., muestras de agua para análisis químico y bacteriológico, no fue posible tomar muestras de otros alimentos.

**Resultados:** se identifican 20 casos (20/157 TA 12.73%) en 5 familias. Periodo de incubación de 10 horas. Alimento asociado berenjena RR=17.0 (IC95% 7.41-38.77) p <0.0001. Contacto con plaguicida previo a alimentarse RR=3.7 (IC95% 1.67-8.13) p<0.001 Había fumigado a más de 100 mts de la casa RR=23 (IC95% 7.20-73.88) p<0.00001 Los dos coprocultivos fueron negativos así como el análisis de agua

**Discusión:** Este brote de Enfermedad Transmitida por Alimentos en donde la berenjena fue el vehículo responsable del aparecimiento de los casos, aunque la etiología pudiera ser los plaguicidas con que se fumigaron no se descarta otras posibilidades como *salmonella* o un *virus*.

**Recomendaciones:** Recalcar la necesidad del uso inocuo y racional de los plaguicidas principalmente en relación a productos de consumo humano a través de legislación, la educación para el manejo adecuado de estos productos tóxicos y principalmente la promoción de la agricultura orgánica.

## Appendix B

### Abstract 1

#### **Factores de Riesgo de Mortalidad Materna en el Departamento de Huehuetenango. Guatemala, 2002**

*Evelyn Johanna Alvarado Polanco, José Orlando Cano López, Claudia Rosanna Herrera Maldonado, Fredy Rolando Rodas Alvarado . DDM III. Hospital Nacional de Huehuetenango, Ministerio de Salud, Guatemala*

**Introducción:** Se busca conocer algunos de los factores de riesgo relacionados con la mortalidad materna en el Departamento de Huehuetenango, Guatemala.

**Metodología:** Se realizó un estudio de casos y controles; los casos fueron toda muerte materna de causa obstétrica registrada durante el año 2002 ( $n = 41$ ); los controles fueron pareados según lugar de residencia y que hubieran parido en el mismo mes y año de la fallecida y que sobrevivieron ( $n = 82$ ).

**Resultados:** Tasa de mortalidad materna de 157 por mil nacidos vivos; y como causa de mortalidad más frecuente a la retención placentaria con 39%, siguiéndole septicemia con el 8% y aborto con un 12%; como factores de riesgo asociados significativamente se encontró: intervalo intergenésico menor de 2 años con OR = 8.05 (IC95% 1.89-17.43), no haber tenido control prenatal con OR = 4.05 (IC 95% 1,54-10.78), mujeres sin escolaridad con OR = 3.73 (IC 95% 1.31-11.18), no haber tenido control postnatal con OR = 3.59 (IC95% 1.45-9.04), más de 5 integrantes en la familia con OR = 3.27 (IC 95% 1.20-9.21), y mujeres multíparas (más de cuatro partos) con OR = 2.35 (IC95% 1.01-5-52);

**Discusión:** Estos resultados destacan la necesidad de fortalecer acciones de educación sanitaria dirigida a la madre, la familia y comunidad sobre salud materno, realizar estrategias que mejoren el acceso, disponibilidad y calidad de los servicios de salud y sobre todo desarrollar acciones multisectoriales para elevar el nivel de vida.

**Palabras clave:** Mortalidad materna, factores de riesgo.

### Abstract 2

#### **Determinación Del Estado Nutricional En Niños Menores De Cinco Años, En El Municipio De San Agustín Acasaguastlán, El Progreso. Julio-Agosto 2003**

*Carlos Alberto Ovando Melchor, DDM III Área de Salud El Progreso, Ministerio de Salud, Guatemala*

**Introducción:** En Guatemala más del 50% de los niños menores de 5 años tienen algún grado de desnutrición, aumentando las tasas de mortalidad cuando se asocia a patologías como la diarrea o neumonías. Este problema se ha agudizado en la región oriente del país

que es a donde pertenece El Progreso, lo que despertó la necesidad de conocer nuestra propia realidad.

**Metodología:** Se realizó un estudio de tipo observacional descriptivo. Se encuestó a una población de 2827 niños pertenecientes a ocho comunidades de riesgo. Los cuales debieron cumplir con los criterios de inclusión, los que se clasificaron de acuerdo a la tabla de Nabarro.

**Resultados:** La prevalencia total de desnutrición fue de 7.7%, las comunidades con mayor prevalencia son: El Cimiento 15.7% y El Jute 14.7%, el grupo etáreo con más alta prevalencia fue de 1 a < 2 años =24%, la prevalencia más baja en el grupo de > de 1 año = 2.2%, no se evidenció diferencia en cuanto a género.

**Discusión:** El Departamento de El Progreso no está exento del problema, urge implementar acciones de intervención con la población de desnutridos menores de 5 años, llevando monitoreo del proceso, así como complementar el estudio en todo el departamento y diseñar un estudio para determinar los factores de riesgo relacionados con este problema.

**Palabras clave:** Desnutrición, tabla de nabarro, Prevalencia.

### Abstract 3

#### **Factores De Riesgo En La Mortalidad Neonatal. Hospital Nacional De Huehuetenango. Enero – Junio 2003**

*Evelyn Johanna Alvarado Polanco DDM III, Hospital Nacional de Huehuetenango, Ministerio de Salud, Guatemala*

**Introducción:** Se investigaron factores de riesgo relacionado con Mortalidad Neonatal, Hospital Nacional de Huehuetenango, Guatemala.

**Metodología:** Estudio de Casos y Controles. Caso: Neonato de 0 – 28 días de vida, fallecido en el servicio de Neonatología (n = 28). Control: dos neonatos egresados vivos del servicio por cada fallecido (n = 56), pareados según edad gestacional, sexo y lugar de nacimiento

**Resultados:** Los factores de riesgo No tener control prenatal (OR = 81 [IC95% 10.06-652]), síndrome membrana hialina (OR = 27.30 [IC95% 5.99-143]) peso neonatal menor, Madre manipulada por comadrona (OR = 3.86 [IC95% 1.32-11.63]), edad gestacional menor de 36 semanas (OR = 3.51 [IC95% 1.23-10.18]). Las patologías más comúnmente presentadas en los neonatos fallecidos fueron síndrome de membrana hialina 60.71% (17/28) y sepsis 53.57% (15/28).

**Discusión:** Los resultados orientan a fortalecer acciones educativas sanitarias en control prenatal y planificación familiar, realizar estrategias que mejoren el acceso, disponibilidad y calidad de los servicios de salud tanto comunitarios como hospitalarios.

#### Abstract 4

#### **Evaluación De Coberturas De Vacunación, Comitancillo, San Marcos, septiembre 2003**

*William Alfredo, DDM III, Mérida González, DDM III, Elisa Barrios FETP III*

**Introducción:** A pesar de las acciones del Programa de vacunación en el Municipio de Comitancillo, San Marcos, las coberturas han sido menores de 95% tiene el 2do lugar en bajas coberturas a nivel nacional con persistencia de brotes de Tos Ferina. Se realiza una evaluación de coberturas de vacunación en el municipio.

**Objetivos:** Establecer la cobertura de vacunación para diferentes biológicos en niños de 12 a 48 meses. Estimar las oportunidades perdidas.

**Materiales y métodos:** Estudio observacional descriptivo, Muestreo por Conglomerados Población: niños de 12 a 48 meses. N= 400

**Resultados:** Niños con carne de vacunación 311 (77.8%). La cobertura por biológico para BCG es de 71.25%, DPT-OPV 1era. = 88%, 2da. = 75-5%, 3ra. 71-5%, SPR. 63-5%, la tasa de abandono fue de OPV 10.6%, DPT 13.43% se espera como aceptable una tasa por debajo del 5%. El 75% de las madres sabe que las vacunas sirven para prevenir enfermedades, el 63.5% y el 50.7% respectivamente conoce que previene el sarampión y tos ferina que , son las dos enfermedades que mas conocen.

**Discusion:** Se encontraron coberturas por debajo del 80 % confirmándose que Comitancillo es un municipio crítico. Tasa de abandono por encima de la norma nacional.

**Recomendaciones:** Fortalecer el monitoreo del programa de vacunación, promoción y educación constante. Fortalecer y actualizar el uso constante del carné de vacunación.

#### Abstract 5

#### **Incidencia De Suicidios Con Plaguicidas, Años 2001 – 2003, Retalhuleu, Guatemala**

*Romeo Antonio Guerra Palma, DDM III Área de Salud, Retalhuleu, Guatemala*

**Objetivo:** Describir la frecuencia de suicidios e intentos de suicidios utilizando plaguicidas relacionado a otros métodos para lograrlo. Caracterización epidemiológica de estos

**Metodología:** Se revisaron registros forenses, vigilancia SIGSA 18, telegrama diario, boletas 4 y 3 Plagsalud, registros hospitalarios. Todo caso reportado: muerte por suicidio o intento, persona intoxicada por ingestión de plaguicida.

**Resultados:** Suicidios: 42, Intentos de suicidio 30, Tasa de Incidencia 1.3 x 10000 hab. 85% de suicidios fue con plaguicidas, 15% por asfixia por suspensión del cuello (ahorcado). Entre Abril y Agosto, mayor número de casos de suicidio, Grupo etáreo de 12 a 22 años (36.11%). Relación 3 hombres: 1 mujer. Plaguicida más usado: Fosfina, En 2003 (51%) de casos reportados accidentales fueron con intención. Factores de riesgo: alcoholismo, deudas, fácil obtención del producto, violencia intrafamiliar, prostitución infantil, embarazo indeseado, riñas.

**Discusión:** Aparentemente problema estacional de abril a agosto, de mucha actividad agrícola, problemas económicos, alcoholismo que agravan la violencia intrafamiliar, mal trato en adolescentes, explotación infantil y problemas de pareja

**Relevancia para la salud pública, y recomendaciones:** Toda medida de educación, capacitación, divulgación, apoyada por los actores sociales contra los factores de riesgo. Deben socializarse los resultados pues, el grupo etáreo con todas sus características es el productivo y futuro del área.

## Abstract 6

### **Prevalencia De Diarrea y Factores De Riesgo En Niños Menores De 5 Años De Edad Residentes En Pachalum, Quiche Julio, 2003**

*César Oliverio Juárez Paiz, DDM III Quiche, Guatemala*

**Introducción:** 67.68% de los pacientes que consultaron por diarrea en el Centro de Salud de Pachalum, Quiché durante 2002 eran menores de 5 años, además esta constituyó el 66.66% de las causas de defunción en menores de un año. Este estudio se diseñó para determinar la prevalencia de diarrea y factores de riesgo en niños menores de 5 años del 17 al 31 de julio de 2003 en este municipio.

**Metodología:** Realizándose una encuesta se estableció la presencia de diarrea en los niños durante en los últimos 15 días, además algunas características de sus familias y hogares, esta se pasó en los domicilios elegidos de forma aleatoria en todo el municipio; N= 419 menores de 5 años de zona rural y urbana de Pachalum, Quiché.

**Resultados:** La Prevalencia fue de 20.22%, (73/361), la mayor prevalencia por grupo de edad fue de 1 a menos de 2 años 33% (27/81). Factores de riesgo, mala higiene de los alimentos crudos que come el niño (OR= 2.83 [IC95% 1.35-5.91]) y La diarrea está más asociada a niños de 1 a menores de 2 años (OR 2.54 IC85% 1.4-4.6]). Quemar basura OR=1.79 (IC 95% 1.03-3.1).

**Conclusiones:** Los resultados obtenidos hace hincapié en necesidad de educación sobre el manejo adecuado de los alimentos principalmente por parte de la madre.. El grupo de con mayor asociación puede estar relacionado con la ablactancia y la quema de la basura podría estar

asociada a contaminación cerca a lugares de preparación de alimentos. Se sugiere estudios complementarios.

## Abstract 7

### **Prevalencia De Infección De Herida Operatoria Por Cesárea Y Sus Factores De Riesgo Hospital Nacional De Huehuetenango Dr. Jorge Vides Molina Enero – Junio 2003**

*Claudia Rossana Herrera Maldonado, DDM III Hospital Nacional de Huehuetenango, Guatemala*

**Objetivo:** Conocer la prevalencia de infección de herida operatoria por cesárea y algunos factores de riesgo asociados, en el Hospital Nacional de Huehuetenango, Guatemala.

**Material y métodos:** Se realizó un estudio transversal y de casos y controles; los casos fueron todos los expedientes de pacientes que presentaron infección de herida por cesárea registradas del 1 de enero al 30 de junio del año 2003 ( $n = 12$ ); los controles expedientes de pacientes cesáreadas pareadas según fecha de procedimiento y que no presentaron infección ( $n = 24$ )

**Resultados:** La tasa de prevalencia de infección de herida por cesárea fue de 2.28% como factores de riesgo asociados se encontró a la manipulación previa por comadrona ( $OR = 10$  IC95% 1.6-73.05), procesos infecciosos ya establecidos como corioamnionitis ( $OR = 7.67$  IC95% 1.57-220), que las pacientes procedan de un municipio lejano  $OR=9$  (IC95% 1.47-63.34), tiempo quirúrgico de 2 horas ( $OR =7.67$  IC95% 1.57-220).

**Conclusiones:** Se conoce la prevalencia y factores de riesgo asociados a la presencia de infección de herida por cesárea, factores que en muchos casos podrían ser modificables, lo cual destaca la necesidad de fortalecer acciones de educación materna nivel comunitario para la mujer en edad fértil, y realizar acciones de control y prevención a nivel hospitalario creando protocolos de manejo de pacientes cesáreados, se justifica la política de administrar profilaxis antibiótica.

Palabras clave: Infección de herida operatoria, cesárea, factores de riesgo, prevalencia.

## Abstract 8

### **Factores De Riesgo En Mortalidad Infantil Municipio De San Juan Atitán, Huehuetenango Enero – Agosto 2003**

*José Orlando Cano López, DDM III Hospital Nacional de Huehuetenango, Guatemala*

**Introducción:** Se buscó conocer los factores de riesgo relacionados con la mortalidad infantil en el municipio de San Juan Atitán, del departamento de Huehuetenango, Guatemala.

**Material y Métodos:** Se realizó un estudio de casos y controles; los casos fueron todos los fallecidos menores de 1 año registrados del 1 de enero al 31 de agosto del año 2003 ( $n = 33$ ); los controles fueron pareados según lugar de residencia, que hubieran nacido en el mismo mes del fallecido y que estuvieron expuestos a los mismos factores de riesgo y que sobrevivieron ( $n = 66$ ).

**Resultados:** La causa de mortalidad más frecuente a la neumonía (73%) y el grupo de 28 días a un año como los más afectados; como factores de riesgo asociados se encontró: la migración familiar ( $OR = 1.98$ ) la madre sin control postnatal ( $OR = 4.41$ ); ambas con asociación no significativa; la madre sin escolaridad con  $OR = 8.62$  (IC 95% 1.09 – 183.83), el niño con peso al nacer menor de 5 libras y  $\frac{1}{2}$  con  $OR = 6.21$  (IC95% 1.97-20.24), y el niño sin control de crecimiento y desarrollo con  $OR = 10.24$  (IC95% 1.31-216.9) mostraron asociación significativa.

**Discusión:** Estos resultados destacan la necesidad de fortalecer acciones de educación sanitaria dirigida a la madre, la familia y comunidad sobre salud materno infantil, realizar estrategias que mejoren el acceso, disponibilidad y calidad de los servicios de salud y sobre todo desarrollar acciones multisectoriales para elevar el nivel de vida.

Palabras clave: Mortalidad infantil, factores de riesgo.

## Abstract 9

### **Prevalencia De Lesiones Cutaneas Positivas A Leishmaniasis Aldea La Esperanza, Melchor, Petén, Guatemala Enero – Junio 2003**

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**Introducción:** La Leishmaniasis ha sido considerada de importancia epidemiológica en el departamento del Petén debido a que posee características ambientales, sociales y demográficas para que permanezca activa. Actualmente el número de casos ha aumentado en las diferentes comunidades siendo una de ellas la aldea La Esperanza, Melchor, Petén. El presente estudio se realizó en esta comunidad, con el propósito de conocer la prevalencia y comportamiento epidemiológico.

**Metodología:** El estudio incluyó a 119 habitantes (100%) a quienes se realizó la entrevista llenando la boleta de investigación previamente validada y todo el que refirió tener alguna ulcerá se le realizó froté de la lesión en busca de amastigotes, además se tomó a personas que de enero a junio se le hubiera realizado froté y estuviera positivo a leishmania verificándolo en el libro del laboratorio.

**Resultados:** La prevalencia encontrada fue de 23% (27 casos), la mayor prevalencia se observó en el sexo masculino 28% y 16% en femenino, el grupo etáreo más afectado fue de 20 a 24 años con prevalencia de 39%, el 48% de las personas positivas son

agricultores, el 48.1% manifestaron creer que la mosca los pico en una lesión y la ubicación anatómica el 30% de las lesiones se ubicaron en brazos, siguiendo las piernas con un 19%.

**Discusión:** Los resultados obtenidos contribuirán a mejorar el control de la leishmaniasis en esta comunidad

Palabras clave: Lesión cutánea, leishmaniasis, prevalencia.